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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/716,854	11/17/2000	Hung Duy Vo	E0886	9608

7590 06/17/2004

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EXAMINER

NGUYEN, ALAN V

ART UNIT	PAPER NUMBER
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2662

DATE MAILED: 06/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/716,854

Applicant(s)

VO ET AL.

Examiner

Alan Nguyen

Art Unit

2662

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 8 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8,10,12,13,15 and 16 is/are rejected.
- 7) ☒ Claim(s) 9,11,14 and 17-19 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Specification*

1. The disclosure is objected to because of the following informalities:

In the first office action, Examiner identified that on line 6 of page 16 of the original specification, "determine if there". However, on page 8 of the amendment received on 3/8/04 a change was made in the wrong place, Referring to the last paragraph on page 8 of the amendment, "cache 45 if the node" in line 2 should be changed back to --cache 45 of the node--, and "determine of there" on line 4 should be changed to --determine if there--.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-8 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over C Liu et al (US 5,754,540) in view of S Liu et al (US 6,574,664) hereafter C Liu and S Liu, respectively.

Regarding **claim 1** C. Liu discloses a method of communicating on a network medium, comprising forming a frame in software;

C. Liu discloses transmitting the frame to a network medium interface device which has a pair of media access controllers (MACs) **(a multiport repeater in figure 1**

that manages the physical layer transmit for a plurality of medium dependent interfaces such as MACs 30, 31. The MACs are controlled by controlled by management frame 33; for example see col 3 lines 48-60);

C. Liu discloses determining a selected MAC of the MACs which is to be used to transmit the frame (a TX or FX MAC is selected for transmission based on a bit in the management frame. see bits 8-15 of register 17 on col 200 where 1=TX MAC and 0=FX MAC; col 4 lines 21-28); and

C. Liu discloses transmitting the frame onto the network medium using the selected MAC (a value of 1 enables transmit; see bits 0-7 of register 17 on col 20-21).

C. Liu fails to expressly disclose the use of a node discovery block.

S. Liu discloses a method and apparatus for a node discovery block (local discovery node 132 in figure 5; discovery node has the capability of determining the IP and MAC addresses of devices connected to the network; col 3 lines 33-43).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify C. Liu's apparatus to utilize a node discovery block to determine the MAC to transmit the frame, as taught by S. Liu. The motivation is a more efficient system that can retrieve MAC information quicker through address manageability, as explained by S. Liu on column 1, lines 33-47 and column 2, lines 6-12.

Regarding **claim 2 C**. Liu discloses where the determining includes the network medium interface device checking the frame for embedded MAC selection information **(checking the management frame for access 17 for selection of the TX or FXMAC; col 3 lines 56-58)**.

Regarding **claim 3 C**. Liu discloses where the checking includes checking the frame for a first bit which indicates whether the MAC selection information has been embedded **(checking for bits 0-7 of register 17 for port enabled)**.

Regarding **claim 4 C**. Liu discloses where the determining includes, if the first bit indicates that the MAC selection information has been embedded in the frame **(if bits 0-7 of register 17 indicates the port is enabled)**, checking a second bit of the frame, and using the value of the second bit to determine the selected MAC **(checking bits 8-15 of register 17 and using the value of this bit to determine TX MAC if 1 and FX MAC if 0)**.

Regarding **claim 5 C**. Liu discloses a method of communicating on a network medium, comprising forming a frame in software;

C. Liu discloses transmitting the frame to a network medium interface device which has a pair of media access controllers (MACs) **(a multiport repeater in figure 1 that manages the physical layer transmit for a plurality of medium dependent**

**interfaces such as MACs 30, 31. The MACs are controlled by controlled by management frame 33; for example see col 3 lines 48-60);**

C. Liu discloses determining a selected MAC of the MACs which is to be used to transmit the frame **(a TX or FX MAC is selected for transmission based on a bit in the management frame. see bits 8-15 of register 17 on col 200 where 1=TX MAC and 0=FX MAC; col 4 lines 21-28); and**

C. Liu discloses transmitting the frame onto the network medium using the selected MAC **(a value of 1 enables transmit; see bits 0-7 of register 17 on col 20-21).**

C. Liu discloses the network medium interface checking the frame for embedded MAC selection information **(checking the management frame for access 17 for selection of the TX or FXMAC; col 3 lines 56-58); and**

C. Liu fails to expressly disclose if the frame does not contain the embedded MAC selection information querying a node discovery block for node capability information regarding a destination node of a frame.

S. Liu discloses a method and apparatus for a node discovery block **(discovery node has the capability of determining the IP and MAC addresses of devices connected to the network. The discovery node contains a table that is used to translate an IP address into its respective MAC address; for example see col 3 lines 33-43 and col 4 lines 8-21).**

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify C. Liu's apparatus to utilize a node discovery block to

determine the MAC to transmit the frame, as taught by S. Liu. The motivation is a more efficient system that can retrieve MAC information quicker through address manageability, as explained by S. Liu on column 1, lines 33-47 and column 2, lines 6-12.

Regarding **claims 6-8** C. Liu further fails to disclose where the querying includes obtaining from the frame a destination address corresponding to the destination node, and passing the destination address to the node discovery block

S. Liu discloses the **(discovery node used to translate an IP address into its respective MAC address; col 4 lines 8-15 and 44-53).**

S. Liu discloses where the passing the destination address includes passing the destination address to a file retrieval sub-block of the node discovery block, and where the querying further includes the file retrieval sub-block searching a cache sub-block of the node discovery block for the node capability information regarding the destination node of the frame **(discovery node 132 is associated with an “atTable” which is in essence, the cache; see table 1. Translation of the IP address into the MAC address is retrieved from the table; see col 4 lines 44-67).**

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify C. Liu’s apparatus to utilize a node discovery block to determine the MAC to transmit the frame, as taught by S. Liu. The motivation is a more efficient system that can retrieve MAC information quicker through address

manageability, as explained by S. Liu on column 1, lines 33-47 and column 2, lines 6-12.

Regarding **claim 15** C. Liu discloses where the network medium includes telephone lines **(unshielded twisted pair; col 1 line 56)**.

4. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over C. Liu in view of Vepa et al (US 6,567,377) hereafter Vepa.

Regarding **claim 10** C. Liu discloses a method of communicating on a network medium, comprising forming a frame in software;

C. Liu discloses transmitting the frame to a network medium interface device which has a pair of media access controllers (MACs) **(a multiport repeater in figure 1 that manages the physical layer transmit for a plurality of medium dependent interfaces such as MACs 30, 31. The MACs are controlled by management frame 33; for example see col 3 lines 48-60)**;

C. Liu discloses determining a selected MAC of the MACs which is to be used to transmit the frame **(a TX or FX MAC is selected for transmission based on a bit in the management frame. see bits 8-15 of register 17 on col 200 where 1=TX MAC and 0=FX MAC; col 4 lines 21-28)**; and

C. Liu discloses transmitting the frame onto the network medium using the selected MAC **(a value of 1 enables transmit; see bits 0-7 of register 17 on col 20-21)**.



C. Liu fails to expressly disclose where the forming includes embedding in the frame MAC selection information regarding a destination node of the frame, if the software has available to it node capability information regarding the destination node.

Vepa discloses a data packet transmission system that embeds the MAC address into the packet **(The outgoing data packet is addressed using an IP address and TCP port number. The MAC address that represents the selected destination is inserted in the outgoing packet; col 5 lines 32-45).**

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify C. Liu's apparatus for the frame to have the MAC address embedded into it, as taught by Vepa. The motivation is a simplified and efficient system that allows the routers to do less address translations and contain smaller routing tables.

5. Claims 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over C. Liu in view of Lowe et al (US 6,442,617) hereafter Lowe.

Regarding **claims 12 and 13** C. Liu discloses a method of communicating on a network medium, comprising forming a frame in software;

C. Liu discloses transmitting the frame to a network medium interface device which has a pair of media access controllers (MACs) **(a multiport repeater in figure 1 that manages the physical layer transmit for a plurality of medium dependent interfaces such as MACs 30, 31. The MACs are controlled by controlled by management frame 33; for example see col 3 lines 48-60);**

C. Liu discloses determining a selected MAC of the MACs which is to be used to transmit the frame **(a TX or FX MAC is selected for transmission based on a bit in the management frame. see bits 8-15 of register 17 on col 200 where 1=TX MAC and 0=FX MAC; col 4 lines 21-28); and**

C. Liu discloses transmitting the frame onto the network medium using the selected MAC **(a value of 1 enables transmit; see bits 0-7 of register 17 on col 20-21).**

C. Liu fails to expressly disclose where the transmitting includes passing the frame through a system MAC between the software and the network medium interface device.

Lowe discloses a system used for packet transmission that has a NIC that interfaces between the network 120 and computer system 100 **(The network interface card NIC performs CRC and determines the has values for the respective multicast addresses. This requires the use of header processing and appending the packet; col 7 lines 15-22).**

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify C. Liu's apparatus to utilize an intervening device between the network medium and the computer, as taught by Lowe. The motivation is a more efficient and higher performing system that enables to decrease CPU utilization by having the network interface cards compute CRC checks, as explained by Lowe on column 7 lines 18-21.

6. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over C. Liu in view of Vepa, and further in view of S. Liu.

Regarding **claim 16** C. Liu discloses a method of communicating on a telephone line network medium, comprising forming a frame in software,

C. Liu discloses transmitting the frame to a network medium interface device which has a pair of media access controllers (MACs) **(a multiport repeater in figure 1 that manages the physical layer transmit for a plurality of medium dependent interfaces such as MACs 30, 31. The MACs are controlled by management frame 33; for example see col 3 lines 48-60);**

C. Liu discloses determining a selected MAC of the MACs which is to be used to transmit the frame **(a TX or FX MAC is selected for transmission based on a bit in the management frame. see bits 8-15 of register 17 on col 200 where 1=TX MAC and 0=FX MAC; col 4 lines 21-28);**

C. Liu discloses using the network medium interface device checking the frame for embedded MAC selection information and using the MAC selection information to determine the selected MAC **(checking the management frame for access 17 for selection of the TX or FXMAC; col 3 lines 56-58); and**

C. Liu discloses where the network medium includes telephone line medium **(unshielded twisted pair; col 1 line 56).**

C. Liu fails to disclose the forming including embedding in the frame MAC selection information regarding a destination node of the frame, if the software has available to it node capability information regarding the destination node **(Vega**

**discloses the outgoing data packet is addressed using an IP address and TCP port number. The MAC address that represents the selected destination is inserted in the outgoing packet; col 5 lines 32-45).**

C. Liu further fails to disclose if the frame does not contain the embedded MAC selection information, querying a node discovery block for node capability information regarding a destination node of the frame, and using the node capability information to determine the selected MAC (**S. Liu discloses the discovery node has the capability of determining the IP and MAC addresses of devices connected to the network. The discovery node contains a table that is used to translate an IP address into its respective MAC address; for example see col 3 lines 33-43 and col 4 lines 8-21; Discovery node 132 is associated with an “atTable” which is in essence, the cache; see table 1. Translation of the IP address into the MAC address is retrieved from the table; see col 4 lines 44-67).**

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify C. Liu's apparatus for the frame to have the MAC address embedded into it, as taught by Vepa. The motivation is a simplified and efficient system that allows the routers to do less address translations and contain smaller routing tables. It would have also been obvious to further modify C. Liu's apparatus to utilize a node discovery block to determine the MAC to transmit the frame, as taught by S. Liu. The motivation is a more efficient system that can retrieve MAC information quicker through address manageability, as explained by S. Liu on column 1, lines 33-47 and column 2, lines 6-12.

***Allowable Subject Matter***

7. **Claims 9, 11, 14, and 17-19** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding **claim 9** the cited references taken individually or in combination fails to particularly disclose the combination of where the determining includes selecting a default MAC from between the MACs if the frame does not contain the embedded MAC selection information and if the node discovery block does not contain node capability information regarding the destination node of the frame.

Regarding **claims 11 and 17** the cited references taken individually or in combination fails to particularly disclose the combination of where the embedding includes setting the first bit of the frame to indicate that the MAC selection information has been embedded, and setting a second bit of the frame to indicate which of the MACs is the selected MAC.

Regarding **claim 14** the cited references taken individually or in combination fails to particularly disclose the combination of where the passing includes the intervening device checking the frame for embedded MAC selection information, and, if the frame does not have the embedded MAC selection information and the intervening device has available to it node capability information regarding the destination node, embedding the embedded MAC selection information in the frame.

***Response to Arguments***

8. Applicant's arguments with respect to claims 1-19 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following patents are cited to show the state of the art with respect to MAC addressing :

US Patent (6,731,604) to Chugo et al

US Patent (6,647,509) to Ichinohe et al

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alan Nguyen whose telephone number is 703-305-0369. The examiner can normally be reached on 9am-6pm ET, Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on 703-305-4744. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9314.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AVN  
June 10, 2004

A handwritten signature in black ink, appearing to read 'JPezzo', is positioned above the printed name and title.

**JOHN PEZZLO**  
**PRIMARY EXAMINER**